

ECMS1V1306

Common mode choke, surface mount



Product features

- High frequency filter
- Square type closed magnetic core
- Current rating up to 10 A
- 13 mm x 11.3 mm surface mount package in a 6.4 mm height
- Moisture sensitivity level (MSL): 1

Applications

- Battery backup
- Renewable energy products
- High tech consumer products
- Appliances
- LED lighting
- Smart meters
- Industrial IoT equipment
- Motion controls
- Power supplies
- Medical equipment

Environmental compliance and general specifications

- Storage temperature (component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant



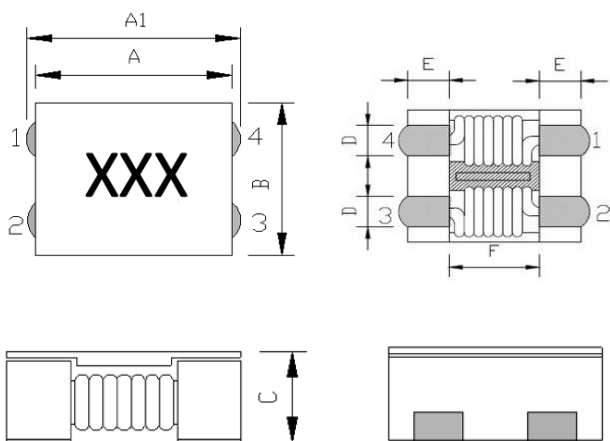
Product specifications

Part number ⁵	Impedance ¹ (Ω) minimum	Impedance ¹ (Ω) typical	DCR ² (mΩ) @ +25 °C maximum	Rated current ³ (A) maximum	Rated voltage (Vdc) maximum	Insulation resistance ⁴ (MΩ) minimum
ECMS1V1306-231-R	80	230	2.0	10	80	10
ECMS1V1306-701-R	500	700	6.0	8.0	80	10
ECMS1V1306-801-R	600	800	8.0	8.0	80	10
ECMS1V1306-102-R	750	1000	14	6.0	80	10

1. Impedance test parameters: 100 MHz, 0.1 Vrms, parallel connection (1,2 - 4,3), +25 °C
2. DCR test parameters: parallel connection (1,2 - 4,3), 4-wire method measured at +25°C
3. Rated current: DC current for an approximate temperature rise of 40 °C without core loss. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

4. Insulation resistance: Coil to coil
5. Part Number Definition: ECMS1Vxxx-yyy-R
ECMS1V = Product code
xxx= Size indicator
yyy= Typical impedance value in ohms. R= decimal point, if no R is present then last digit indicates the number of zeros
-R suffix = RoHS compliant

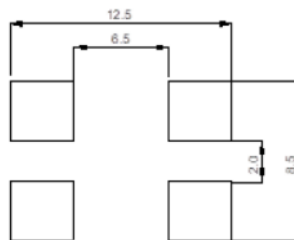
Mechanical parameters, schematic, pad layout (mm)



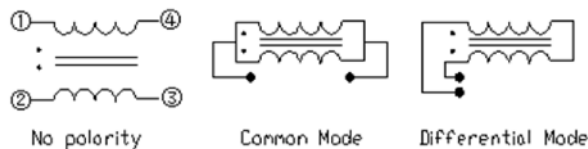
Dimension	Value
A	12.0 ±0.5
A1	12.5 ±0.5
B	10.8 ±0.5
C	6.4 maximum
D	2.7 typical
E	2.5 typical
F	7.0 typical

Part marking: xxx= Typical impedance value in ohms
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.5 millimeters unless stated otherwise
Traces or vias underneath the inductor is not recommended

Recommended PCB Layout

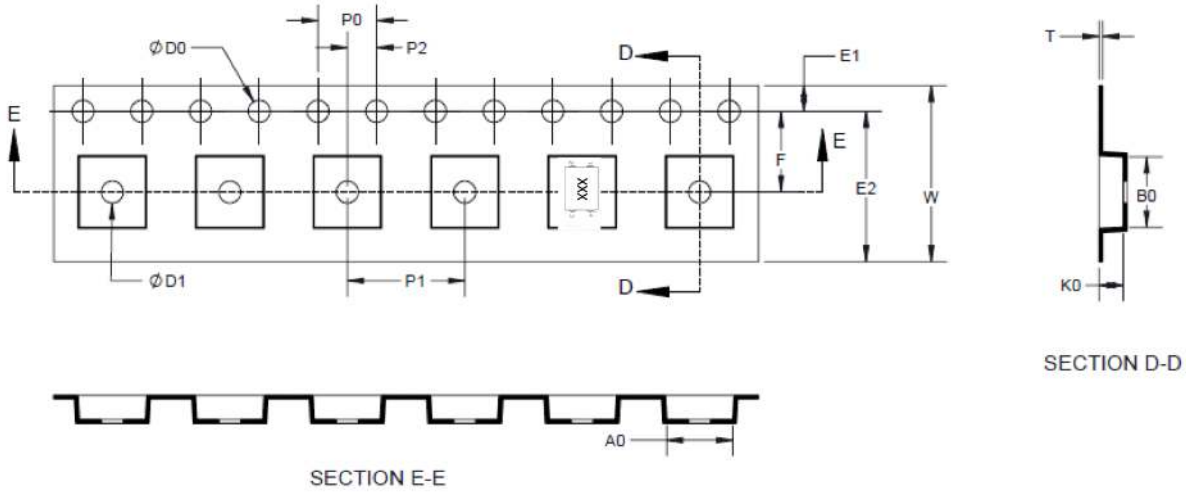


Schematic



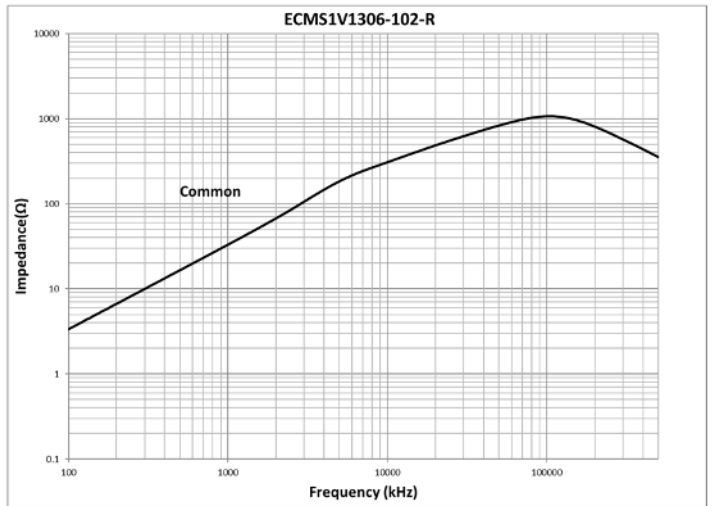
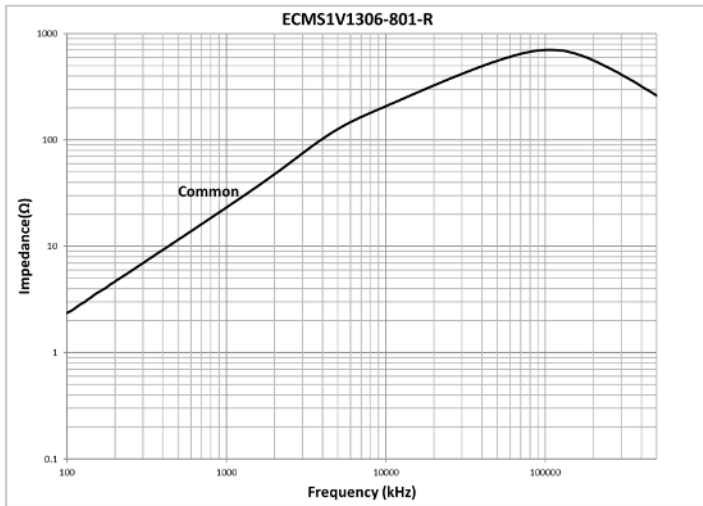
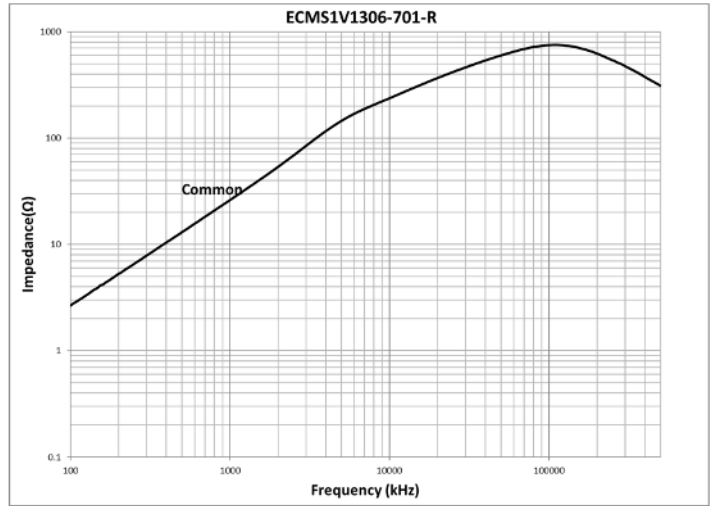
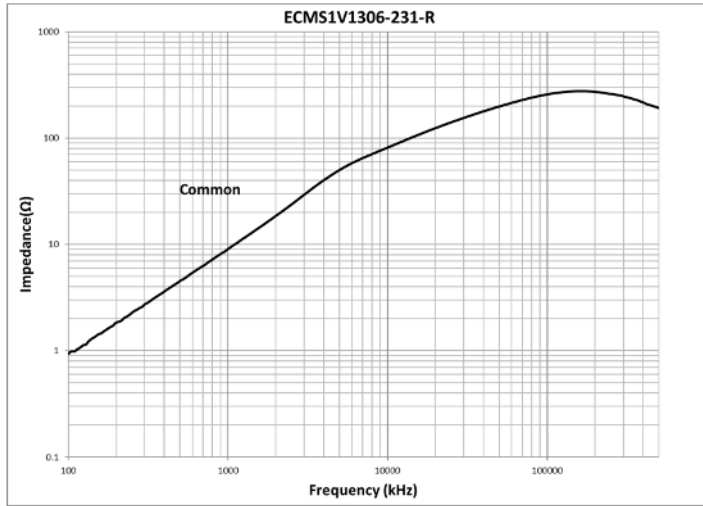
Packaging information (mm)

Supplied in tape and reel packaging, 13" diameter reel (EIA-481 compliant)
500 parts per reel



Dimension	Value
W	24.0 ±0.3
F	11.5 ±0.1
E1	1.75 ±0.1
E2	na
P0	4.0 ±0.1
P1	16 ±0.1
P2	2.0 ±0.1
D0	1.5 +0.1/-0
D1	1.5 +0.1/-0
A0	12.5 ±0.1
B0	11.5 ±0.1
K0	6.6 ±0.1
T	0.4 ±0.05

Impedance vs frequency



Solder reflow profile

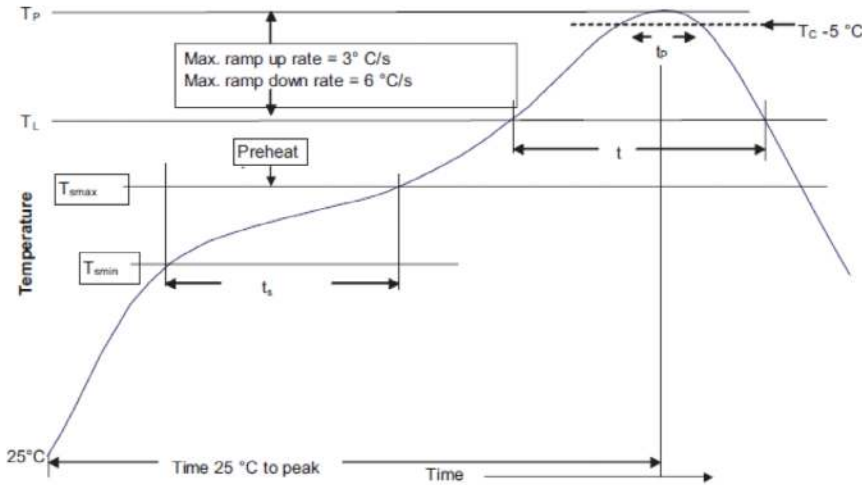


Table 1 - Standard SnPb solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) free solder (T_C)

Package thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference J-STD-020

Profile feature	Standard SnPb solder	Lead (Pb) free solder
Preheat and soak		
• Temperature min. (T _{smin})	100 °C	150 °C
• Temperature max. (T _{smax})	150 °C	200 °C
• Time (T _{smin} to T _{smax}) (t _s)	60-120 seconds	60-120 seconds
Ramp up rate T _L to T _p	3 °C/ second max.	3 °C/ second max.
Liquidous temperature (T _L)	183 °C	217 °C
Time (t _L) maintained above T _L	60-150 seconds	60-150 seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)* within 5 °C of the specified classification temperature (T _C)	20 seconds*	30 seconds*
Ramp-down rate (T _p to T _L)	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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